Influence of bacteria in *Bursaphelechus xylophilus* infection mechanisms

Mariana Roriz, Carla Santos, Marta Lima, Marta W. Vasconcelos

Escola Superior de Biotecnologia, Universidade Católica Portuguesa, Rua Dr. António Bernardino de Almeida, 4200-072, Porto, Portugal

The etiology of pine wilt disease, caused by the pine wood nematode (PWN) *Bursaphelenchus xylophilus* (Steiner and Buhrer) Niclke, is not well understood. The pine sawyer *Monochamus galloprovincialis* (long-horned beetle) is the vector of the nematode, and it is thought that some bacteria participate in the pathogenesis, causing death of the diseased pine trees.

The aim of this study was to understand the symbiotic relationship between the nematode and its accompanying bacteria. To accomplish this, four strains of nematode were used, namely strain HF and 20, isolated from Setubal region; 8A, isolated from the Portuguese central region; and C14-5, an avirulent strain from Japan. The later was used in order to compare the symptoms, hence it is thought that C14-5 doesn't cause death of pine trees.

One nematode of each strain was cultivated in NA media and the bacteria colonies found along the trails of the nematode were isolated and identified. After inoculation of *Pinus pinaster* with nematodes and their associated bacteria the symptoms were analyzed and scored from 1-6, according to different stages of disease. Resin exsudation was also monitored as it is an indicator of disease spread. Finally, the percentage of bacteria remaining in the samples was monitored. These bacteria were once again identified and compared with the initial species found, using API 20 E, Gram Staining, oxidase and catalase tests. Amongst the bacterial species identified, the *Pseudomonas* spp. was one of the most commonly found, as it is reported to help in the infection process.

martavasconcel_110909_0519